



CORELATION BETWEEN LEARNING MOTIVATION AND LEARNING OUTCOMES OF SENIOR HIGH SCHOOL STUDENTS IN HEREDITY MATERIAL

Rahayu¹, Mieke Miarsyah², Reni Indrayanti²

¹Pendidikan Biologi, Fakultas MIPA, Universitas Negeri Jakarta

²Pendidikan Biologi, Fakultas MIPA, Universitas Negeri Jakarta

e-mail: rahayudinata08@gmail.com

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ABSTRACT

Learning outcomes is an ability that must be owned by learner after getting a learning experience. This ability is not an independent thing, but has correlation with many factors, such as learning motivation. The aim of this research is to know the correlation between learning motivation and learning outcomes of senior high school students in Heredity materials. This research was conducted on students grade XII of SMA IT Thariq Bin Ziyad on first and second semester in the school year 2016/2017. Research method that is used is survey through correlational study. Data were collected by using questionnaire for learning motivation, and test instrument for learning outcomes in Heredity material. All data were distribute normally and homogenous. Data were analysed by simple linear regression test showed that regression equation $y = 9,72 + 0,34x$. Result of this research showed that there is positive correlation between learning motivation and learning outcomes of students in Heredity materials with correlation coefficient 0,414. This result illustrate that higher learning motivation will make students' learning outcomes in Heredity material become better.

Keywords: Learning motivation, learning outcomes, Heredity material

INTRODUCTION

Heredity material is one of the biology subject matter that must be mastered well by high school students of science major (IPA) and it is included as one of materials tested in National Exam. Heredity material is very important because it is a prerequisite to understand the other biological material. In addition, Heredity material is a very basic thing in the application of daily life. However, it is often difficult to be understood by the students for its breadth and complexity. Not only that, but its micro nature can also not be seen directly and the rapid development of science that presents new information.

Based on the observation of SMA IT (Sekolah Menengah Atas Islam Terpadu) Thariq bin Ziyad students' heredity material score data for two years showed that score percentage under KKM (Minimum Criteria of Completeness) is 34% in the learning year 2014/2015 and 40% in 2015/2016. The low average of the National Exam Scores at the SMA level is 61,00 in 2014 and 61.29 in 2015 (Mendikbud, 2015) and 54.78 in 2016 (Mendikbud, 2016), in general also

shows that the participants' learning outcomes high school level educated yet optimal. Of course it needs deep study of research towards factors that has correlation between students learning outcomes, especially in Heredity Material.

Students learning outcomes is not an independent thing, yet is a result that connected to many factors. Syamsudin (2002), there are three factors that influence achievements or learning outcomes of students. Those three factors are raw input, instrumental input, and environmental input. Students as raw input has specific characteristic in physiologic and psychologic as well. Physiological characteristics include physical condition and the five senses, while the psychological characteristics include interest, IQ, talent, learning motivation, and cognitive abilities. All of this can affect how the learning process and learning outcomes (Purwanto, 2013)

Motivation is very important for learners to get optimal learning outcomes, because according to Broussard and Garrison (2004) motivation is defined as something that makes a person move to do

or not do something. While learning motivation is used to explain the level given by learners in paying attention and seeking to get something, which can come from the teacher or not (Brophy, 2004).

Good learning motivation is expected to improve learning outcomes of learners, especially on the material Heredityso it can be achieved learning objectives. This study aims to determine the correlation between learning motivation and learning outcomes of high school students on hereditary materials.

METHOD

Research method that used is survey through correlational survey. This research was conducted in SMA IT Thariq Bin Ziyad, Bekasi on the 1st and 2nd semester in the school year of 2016/2017. Population of the study were all students grade XII in Bekasi, West Java. Sample of the study were 81 students grade XII science major in SMA IT Thariq Bin Ziyad, Bekasi.

The experimental study was conducted at equivalent school that was SMA IT Al Fida Bekasi with 70 students. Determination of sample using simple random sampling technique. In this study, learning motivation was the independent variable (X), while the dependent variable was the learning outcomes on Heredity material (Y).

Variable of students motivation can be seen by using questionnaire as an instrument of learning motivation that consist of 9 indicators, they were (1) Intrinsic goal orientation (intrinsic motivation), (2) extrinsic goal orientation (extrinsic motivation), (3) task value, (4) control of learning belief, (5) self efficacy for learning and performance, (6) rehearsal, (7) elaboration), (8) organization, (9) critical thinking. This questionnaire was a variation from Paul R. Pintrich, David A. F. Smith, Teresa Garcia, dan Wilbert J. McKeachie, “A Manual for the Use of the Motivated Strategies for Learning Questionnaire (MSLQ)” writing. Learning motivation instrument that was used were 42 questions which already validate from

person product momment test and tested the reliability by KR-20 test with r count of 0.893.

RESULT AND DISCUSSION

Based on the research, obtained data in the form of learning motivation and learning outcomes from students in herecity materials. In table 1 below, can be seen scoring data recapitulation in every variable of the research.

Table 1. Score data on each Research Variable

Research Variable	Score		
	Average	Lowest	Highest
Learning Motivation	167	95	190
Learning Outcomes	67.51	25	88

Data of learning motivation was collected by using questionnaire which got result that from 81 sample there were 22 learners have high motivation, 37 students had moderate motivation and 22 students have low motivation with total highest total score 190 and total total lowest score 95. Distribution frequency score of students learning motivation can be seen in Figure 1 below:

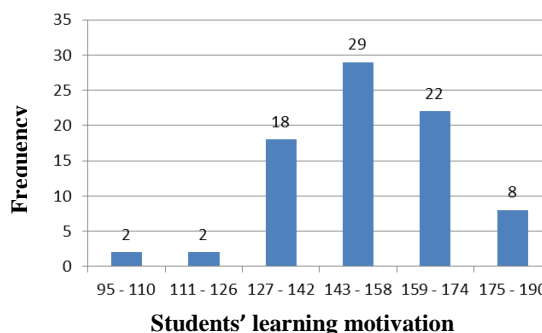
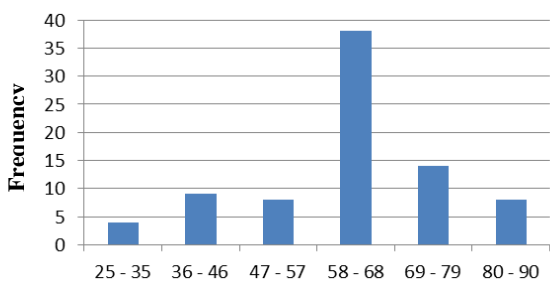


Figure 1. Frequency Distribution of Learning Motivation Scores of Learners

Distribution of average frequency of learners' learning outcomes in Heredity materials can be seen in Figure 2.



The learning outcomes average in Heredity Material

Figure 2. Distribution of Average Frequency of Students' Learning Outcomes in Heredity Materials

The average score of quiz 1 (Substance Genetic Material and Cell Division) and quiz 2 (Inheritance Material of Nature and Mutation) of learners on Heredity material in each level of motivation can be seen in Table 2. Based on the data it can be seen that the value average learning outcomes of learners on Hereditymaterial higher in accordance with the level of motivation with the highest value of 88 and the lowest 25. Overall, average learning outcomes of learners on Heredity materials is 67.51 (Table 1).

Table 2. Average Learning Outcomes of Learners on Heredity Material in Each Group

Learning Motivation	Average learning outcomes	N	Highest	Lowest
High	70	22	88	55
Medium	61	37	85	25
Low	55	22	74	29

Here is a linear regression model of learning motivation with student learning outcomes on Heredity materials:

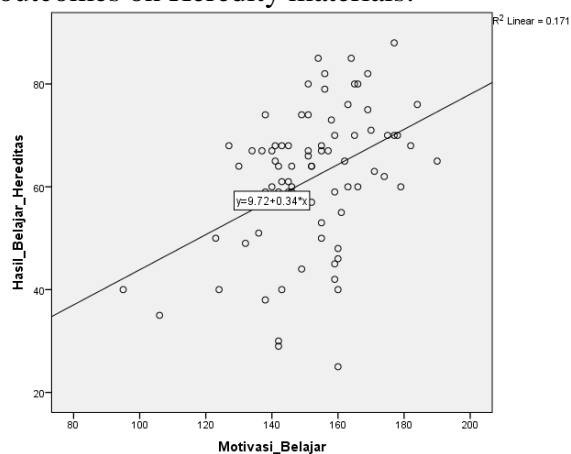


Figure 3. Linear Regression Model of Learning Motivation with Learning Outcomes Learners in Heredity Material

The results of this study indicate that there is a positive correlation between learning motivation and student learning outcomes in Heredity material with correlation coefficient value of 0.414, which is significant at 0.05 significance level. These results illustrate that the higher the learning motivation of learners, the learning outcomes of learners on the material Heredity the better. Conversely, if the score of learning motivation is low then the learners' learning outcomes on Hereditymaterial is also low.

This is consistent with some previous studies that show that motivation to learn has a strong relationship with learners' learning outcomes. The result of Albert, *et al* (2015) shows that there is a positive relationship between motivation and Biology learning result. Similar research has also been conducted by Jen (2013) who found that there is a significant positive relationship between student motivation and learning achievement.

In this study, it can be stated that overall, learning motivation has influence to learning outcomes according to the level. Students with high learning motivation have a better average learning outcomes of 70 compared with learners with moderate learning motivation is 61 and low learning motivation is 55 (Table 2). This shows that learning motivation has consistent correlation with students' achievements of learning outcomes. As states in Azwar (2013) he has pointed out, that in the explanation of motivation, there is a general assumption that if factors that influence learning outcomes are same, then more highly motivated student will get better learning outcomes.

Sudirman (2009) also mentions that motivated learners have the desire and expectation to be success and if get failure, they will struggle hard to get the success shown by the achievement. The existence of diligent and motivated effort so someone who learn will give birth to a good learning achievement.

Learning motivation variable in this research is using questionnaire instrument

with nine indicators, namely (1) Intrinsic goal orientation (intrinsic motivation), (2) extrinsic goal orientation, (3) task value, (4) *control of learning belief* (5) self efficacy for learning and performance, (6) rehearsal (training), (7) elaboration, (8) self efficacy for learning and performance, organization (setting), (9) critical thinking (critical thinking). In this study the average score of the highest learning motivation at all levels of motivation (high motivation, moderate, and low) overall is in extrinsic motivation indicator.

This is analogously with Yeoh, *at al* (2015) study which finds that extrinsic motivation is more influential than intrinsic motivation for biological learning outcomes. Libao, *at al* (2016) in his study also found that extrinsic motivation was related to their academic achievement among motivational indicators in science learning.

Uno (2009) mentions that the factors that influence extrinsic motivation are: (1) awards in learning; (2) interesting activities in learning; and (3) a conducive learning environment. Related to the interesting activity in learning which is one factor of extrinsic motivation, in the class of respondents this research has used some interesting learning media such as 3 dimensional animated video. Three-dimensional animated video is also expected to make the material of abstract Heredity becomes more easily understood so that in the end can improve learning outcomes of learners.

This is in accordance with Elangovan, *at al* (2014) research that conducts research to know the effectiveness of learning method with 3 dimensional computer simulation in cell biology lesson and the result shows that learning method with realistic simulation of 3 dimensional computer can improve learning achievement and memory retention. On the observation of researchers who are directly involved in the process of learning Hereditymaterial also seems all the students are more enthusiastic motivated by interesting learning methods such as the use

of 3-dimensional animated video media, the practice of separation of DNA in vegetables, and discussions about genetic diseases that is around them.

According to Brophy (2004) motivation learners are used to explain the level given learners in paying attention and seek to get something, which can come from the teacher or not. In line with the opinion of Brophy (2004), according to Guay, *at al* (2010) motivation is the underlying reason of behavior, whereas according to Broussard and Garrison (2004) motivation is something that makes the individual move to do or not do something. Therefore, if a learner has been motivated, will have a strong reason to earnestly in learning, so that learners will make the maximum efforts to achieve the goal of getting good learning outcomes.

CONCLUSION

The results of this study indicate that there is a positive relationship between learning motivation with high school students' learning outcomes in Hereditymaterials. This can be interpreted that the higher the motivation to learn, the better the learners' learning outcomes on the material Hereditas. Similarly vice versa if the learning motivation is low then the learning outcomes of learners on Hereditymaterial will also be low.

Based on the results of this study is expected teachers and various parties related to the field of education can make efforts to improve motivation learners learners so that learners can achieve the expected competence, especially on the material Hereditas.

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